

CLAIMS

1. A method of operating a fuel reforming system, the method comprising the steps of:

operating a fuel reformer so as to produce a reformat gas,
5 advancing the reformat gas through a turbine of a turbocharger so as to produce pressurized air, and
advancing the pressurized air to an air inlet of the fuel reformer.

2. The method of claim 1, further comprising the step of
10 advancing the reformat gas exiting the turbine to an intake of an internal combustion engine.

3. The method of claim 1, wherein:
the reformat gas comprises a hydrogen-rich gas, and
15 the reformat gas advancing step comprises advancing the hydrogen-rich gas through the turbine and to an intake of an internal combustion engine.

4. The method of claim 1, further comprising the step of
advancing the reformat gas exiting the turbine to an emission abatement device.

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5. The method of claim 1, wherein:
the reformat gas comprises a hydrogen-rich gas, and
the reformat gas advancing step comprises advancing the hydrogen-rich gas through the turbine and to an emission abatement device.

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6. The method of claim 1, further comprising the step of driving an electrical generator with an output of the turbine.

7. The method of claim 1, wherein:
5 the turbocharger has a compressor coupled to the turbine, and
the reformat gas advancing step comprises driving the compressor with an output of the turbine.

8. The method of claim 1, wherein:
10 the fuel reformer comprises a plasma fuel reformer having an air inlet,
and
the pressurized air advancing step comprises advancing the pressurized air through the air inlet of the plasma fuel reformer.

9. A fuel reforming system, comprising:
15 a turbocharger having (i) a turbine with a reformat gas inlet, and (ii) a
compressor with a pressurized air outlet, and
a fuel reformer having (i) an air inlet fluidly coupled to the pressurized
air outlet of the compressor, and (ii) a reformat gas outlet fluidly coupled to the
20 reformat gas inlet of the turbine.

10. The system of claim 9, wherein the turbocharger has a reformat gas outlet fluidly coupled to an intake of an internal combustion engine.

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11. The system of claim 9, wherein the turbocharger has a reformat gas outlet fluidly coupled to an emission abatement device.

12. The system of claim 9, further comprising an electrical
5 generator having an input coupled to an output of the turbine.

13. The system of claim 9, wherein the fuel reformer comprises a plasma fuel reformer.

10 14. A fuel reforming system, comprising:
an expander having a reformat gas inlet,
a compressor mechanically coupled to the expander, the compressor
having a pressurized air outlet, and
a fuel reformer having (i) an air inlet fluidly coupled to the pressurized
15 air outlet of the compressor, and (ii) a reformat gas outlet fluidly coupled to the
reformat gas inlet of the expander.

15. The system of claim 14, wherein the expander has a reformat gas outlet fluidly coupled to an intake of an internal combustion engine.

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16. The system of claim 14, wherein the expander has a reformat gas outlet fluidly coupled to an emission abatement device.

17. The system of claim 14, further comprising an electrical
25 generator having an input mechanically coupled to an output of the expander.

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18. The system of claim 14, wherein the fuel reformer comprises a plasma fuel reformer.

19. The system of claim 14, wherein the expander is selected from
5 a group consisting of a turbine, a piston-type expander, and a screw-type expander.